What is claimed is:

1. A thin film magnetic head comprising:

a magnetoresistive effect film having

a first stacked part including a magnetic sensitive layer of which magnetization direction changes according to a signal magnetic field from a magnetic recording medium and extending so that width in a first direction corresponding to a recording track width direction of said magnetic recording medium is first width, and

a second stacked part having a first antiferromagnetic layer and extending so that the width in said first direction is second width larger than said first width; and

a pair of magnetic domain control films having

a pair of first magnetic domain control parts which are disposed so as to face each other at an interval corresponding to said first width while sandwiching said first stacked part in said first direction and applying a vertical bias magnetic field to said magnetic sensitive layer, and

a pair of second magnetic domain control parts which are disposed so as to face each other while sandwiching said second stacked part in said first direction and applying a vertical bias magnetic field to said magnetic sensitive layer.

2. A thin film magnetic head according to claim 1, wherein said second stacked part further has a first magnetization direction pinned layer of which magnetization direction is pinned by said first

antiferromagnetic layer.

3. A thin film magnetic head according to claim 1, wherein said second width is equal to or larger than width which is three times as large as said first width, and is equal to or less than width which is ten times as large as said first width.

4. A thin film magnetic head according to claim 3, wherein said first width lies in a range from 0.05 μm to 0.1 μm, and said second width is in a range from 0.3 μm to 0.5 μm.

5. A thin film magnetic head according to claim 1, wherein said pair of first magnetic domain control parts are in contact with said first stacked part.

6. A thin film magnetic head according to claim 1, wherein said first stacked part further includes a second antiferromagnetic layer and a second magnetization direction pinned layer of which magnetization direction is pinned by the second antiferromagnetic layer.

7. A thin film magnetic head according to claim 1, wherein in a second direction corresponding to a thickness direction of said magnetoresistive effect film, center in thickness of said magnetic sensitive layer is in a position corresponding to center in thickness of said pair of

first magnetic domain control parts.

8. A thin film magnetic head according to claim 1, further comprising first and second shield layers which are disposed so as to face each other while sandwiching said magnetoresistive effect film and said pair of magnetic domain control films in said second direction and serve as a current path for passing current in the second direction to said magnetoresistive effect film, wherein

said first shield layer is in contact with said second stacked part and said pair of magnetic domain control films, and

said second shield layer is in contact with said first stacked part and is isolated from said pair of magnetic domain control films by an insulating film.

9. A thin film magnetic head according to claim 8, wherein a first boundary surface between said second shield layer and said first stacked part is flat in said first direction, and

a second boundary surface between said second shield layer and said insulating film extends in the first direction in a plane extended from said first boundary surface or on the side closer to said first shield layer than the extended plane.

10. A thin film magnetic head according to claim 8, wherein a pair of intermediate insulating films is formed between said pair of first magnetic

domain control parts and said first stacked part.

11. A thin film magnetic head according to claim 10, wherein said intermediate insulating film has a thickness which is in a range from 5 nm to 10 nm.

12. A thin film magnetic head according to claim 1, wherein a ratio between thickness in a stacking direction of said first magnetic domain control part and thickness in a stacking direction of said second magnetic domain control part satisfies the following conditional expression (1).

$1/4 \leq T1/T2 \leq 2/3$ ..... (1)

where T1: thickness in the stacking direction of the first magnetic domain control part

T2: thickness in the stacking direction of the second magnetic domain control part

13. A thin film magnetic head according to claim 12, wherein total of the thickness in the stacking direction of said first magnetic domain control part and the thickness in the stacking direction of said second magnetic domain control part is 50 nm or less.

14. A thin film magnetic head according to claim 1, wherein said pair of first magnetic domain control parts and said pair of second magnetic domain control parts have coercive forces which are different from each

other.

15. A thin film magnetic head according to claim 14, wherein either said pair of first magnetic domain control parts or said pair of second magnetic domain control parts is made of a material containing cobalt platinum alloy (CoPt) and the other pair is made of a material containing cobalt chromium platinum alloy (CoCrPt).

16. A method of manufacturing a thin film magnetic head comprising, on a substrate:

a magnetoresistive effect film of a predetermined shape;

a pair of magnetic domain control films disposed so as to face each other while sandwiching said magnetoresistive effect film in a first direction corresponding to a recording track width direction of a magnetic recording medium, and each having first and second magnetic domain control parts; and

first and second shield layers facing each other while sandwiching said magnetoresistive effect film and the pair of magnetic domain control films in a second direction corresponding to a thickness direction of said magnetoresistive effect film,

the method comprising:

a first shield forming step of forming said first shield layer on said substrate;

a multilayer film forming step of forming, on the first shield layer,

a multilayer film including a structure in which an antiferromagnetic layer, a magnetization direction pinned layer, and a magnetic sensitive layer are stacked in order from the side of said first shield layer;

a first resist pattern forming step of selectively forming a first resist pattern on said multilayer film;

a multilayer film pattern forming step of forming a multilayer film pattern by selectively etching said multilayer film by using said first resist pattern as a mask;

a second magnetic domain control part forming step of forming said second magnetic domain control part by forming a ferromagnetic film on an entire surface and removing said first resist pattern;

a second resist pattern forming step of selectively forming a second resist pattern so as to protect a region corresponding to a part which specifies recording track width of said multilayer film pattern;

a magnetoresistive effect film forming step of etching said multilayer film pattern in a non-protection region by using said second resist pattern as a mask so as to remove at least all of said magnetic sensitive layer in said second direction and to leave at least a part of said antiferromagnetic layer in said second direction, thereby completing formation of said magnetoresistive effect film including a first stacked part of which width in said first direction is first width and a second stacked part having second width larger than said first width;

a magnetic domain control film forming step of forming said first magnetic domain control part in a region etched in said magnetoresistive

effect film forming step, thereby completing formation of said pair of magnetic domain control films;

an insulating film forming step of forming an insulating film on said pair of magnetic domain control films; and

a second shield forming step of removing said second resist pattern and, after that, forming said second shield layer on an entire surface.

17. A method of manufacturing a thin film magnetic head comprising, on a substrate:

a magnetoresistive effect film of a predetermined shape;

a pair of magnetic domain control films disposed so as to face each other while sandwiching said magnetoresistive effect film in a first direction corresponding to a recording track width direction of a magnetic recording medium, and each having first and second magnetic domain control parts; and

first and second shield layers facing each other while sandwiching said magnetoresistive effect film and the pair of magnetic domain control films in a second direction corresponding to a thickness direction of said magnetoresistive effect film,

the method comprising:

a first shield forming step of forming said first shield layer on said substrate;

a multilayer film forming step of forming a multilayer film including a structure in which a first antiferromagnetic layer, a first

magnetization direction pinned layer, a magnetic sensitive layer, a second magnetization direction pinned layer, and a second antiferromagnetic layer are stacked on the first shield layer in order from the side of said first shield layer;

a first resist pattern forming step of selectively forming a first resist pattern on said multilayer film;

a multilayer film pattern forming step of forming a multilayer film pattern by selectively etching said multilayer film by using said first resist pattern as a mask;

a second magnetic domain control part forming step of forming said second magnetic domain control part by forming a ferromagnetic film on an entire surface and removing said first resist pattern;

a second resist pattern forming step of selectively forming a second resist pattern so as to protect a region corresponding to a part which specifies recording track width of said multilayer film pattern;

a magnetoresistive effect film forming step of etching said multilayer film pattern in a non-protection region by using said second resist pattern as a mask so as to remove at least all of said magnetic sensitive layer in said second direction and to leave at least a part of said first antiferromagnetic layer in said second direction, thereby completing formation of said magnetoresistive effect film including a first stacked part of which width in said first direction is first width, and a second stacked part having second width larger than said first width;

a magnetic domain control film forming step of forming said first

magnetic domain control part in a region etched in said magnetoresistive effect film forming step, thereby completing formation of said pair of magnetic domain control films;

an insulating film forming step of forming an insulating film on said pair of magnetic domain control films; and

a second shield forming step of removing said second resist pattern and, after that, forming said second shield layer on an entire surface.

18. A method of manufacturing a thin film magnetic head according to claim 16, wherein said second magnetic domain control part is formed by using sputtering in said magnetic domain control film forming step, and

said insulating film is formed at an angle lower than that in the case of forming said second magnetic domain control part by using sputtering in said insulating film forming step.

19. A method of manufacturing a thin film magnetic head according to claim 16, wherein a material having a coercive force different from that of said second magnetic domain control part is used at the time of forming said first magnetic domain control part in said magnetic domain control film forming step, and

the method further comprises a step of polarizing said first magnetic domain control part to a magnetization direction corresponding to a direction of an axis of easy magnetization of said magnetic sensitive layer and polarizing said second magnetic domain control part to a direction

different from the magnetization direction of said first magnetic domain control part by using the coercive force difference.